

Remarks

Reconsideration of the present application is respectfully requested.

The specification was amended to correct a typographical error on page 19.

Of previously pending claims 1, 4-6, 8-11, 19-27, and 37-47, all were rejected. The applicants have accordingly amended claims 1, 5, 19, 24, 26, 27 and 39 to better claim their invention.

Specifically, claims 1, 5, 8-11, 19, 21-24, 26-27, 37-38 and 44-47 were rejected “under 35 U.S.C §102(e) for anticipation by or, in the alternative,” under 35 U.S.C. §103(a) for obviousness over U.S. Patent No. 5,819,043 which issued October 6, 1998 to M.J. Baugher *et al.* From the lack of support with respect to an anticipation rejection and the comments accompanying this rejection which continually referred to “Jain” and the Baugher reference, the applicants assume that the Examiner referral meant to withdraw the anticipation rejection and assert the obviousness rejection by the combination of the previously cited Jain patent application (U.S. Pub. No. 2002/0112072) in view of the Baugher patent. The applicants respond accordingly.

Claims 4, 6, 20, 25, 39-43 were rejected under 35 U.S.C. §103(a) for obviousness over the cited Jain patent application in view of the cited Baugher patent, and further in view of the Applicants' “admitted prior art.”

The applicants respectfully disagree with all of the rejections. To better claim their invention, the applicants have amended independent claims 1, 19, 24, and 39 to recite similar limitations. Dependent claim 5 was amended to further clarify the language of that claim, and claims 26 and 27 correct claim dependencies.

Independent claim 1 and dependent claims 4-6, 8-11 and 37-38

Claim 1, as amended, recites, “...a route generator, the route generator being arranged to generate a primary circuit path between the first node and the second node, the primary circuit path including a first element selected from the plurality of elements, wherein the route generator is configurable to selectively generate a nodal diverse alternate circuit path when a nodal diverse

constraint is input and a link diverse alternate circuit path when a link diverse constraint is input, the input further being arranged to specify circuit characteristics for the primary circuit path and for the alternate circuit path...”.

With respect to independent claim 1, the applicants do not find that the claim limitation quoted above in the cited Jain reference. In rejecting claim 1, the Examiner stated:

Although the system disclosed by Jain shows substantial features of the claimed invention (discussed above), it fails to disclose wherein the route generator is configured to generate a nodal diverse alternate circuit path when a nodal diverse constraint is input, and further configured to generate a link diverse alternate circuit path when a link diverse constraint is input.

However, Jain does show that alternate label switched paths are defined, as such the protection label switched paths allow data to be re-routed so as to avoid failed network nodes as well as failed network links (see paragraph 76).

In analogous art, Baugher discloses that a human being is the most adaptable control means yet devised (see column 3, lines 9-14). Therefore, at the time of the invention, a person having ordinary skill in the art would have found it obvious to create a user interface operable by a network administrator or other system user allowing one to input the alternate label switched paths as defined by the system of Jain, wherein the alternate label switched paths can be nodal diverse or link diverse.

As the applicants understand the Examiner's reasoning, the Examiner admits that the Jain reference does not teach the language cited from the applicants' claim but cites the Baugher patent as making up the difference. This reasoning is erroneous on several points. First, the Examiner misunderstands the quotation of the Baugher reference. An “adaptable control means” does not mean an inventive control means, as the Examiner apparently believes. Rather, the “most adaptable control means” is used to control the input of processes where input is required. That is not what the applicants claim. In fact, a fairer reading of the Baugher reference implies that it teaches away from the applicants' invention. The Baugher reference teaches the heavy involvement of human beings in the described resource reservation system. For example, the illustrated process in Figs. 6A-6C requires human intervention five times, at steps 306, 313, 320, 326, and 335. In the process of Fig. 7, human intervention is called for three times, at steps 407, 415, and 423. In contrast, the applicants' invention tries to avoid human intervention as much as possible due to the increased possibility of error. See applicants' specification at page 6, lines 1 to 15. Finally, the teaching of the Baugher reference does not teach the input of nodal and link diverse constraints, as recited in the applicants' claim.

Still another difference between the cited references and applicants' invention is that the Jain reference also does not describe a list mechanism, as recited in claim 1. Despite the Examiner's citation of the paragraphs [0078] and [0081], the applicants have apparently missed the description of a list mechanism in these paragraphs and respectfully request that the Examiner cite the portions in which such descriptions are found to clarify the basis of the Examiner's citation.

Therefore, claim 1 is not obvious over combination of the Jain and Baugher references and should be allowed. Claims 4-6, 8-11 and 37-38 should also be allowable for at least being dependent upon an allowable base claim. Furthermore, at least some, if not all, of these claims are also allowable in their own right. For example, claim 5 should be allowable. However, in rejecting this claim, the Examiner stated:

Jain in view of Baugher further disclose a system, as claimed, wherein the route generator is arranged to generate the primary circuit path that includes the first element and a set of elements (see Jain paragraph [0098], where having a protected path implies that there is a primary path to protect), and the list mechanism is arranged to identify the first element and the set of elements as being inaccessible for use in generating the alternate circuit path (see Jain paragraph [0098], where a protected path may be a series of links and nodes, implying a set of elements inaccessible for use in generating the alternate circuit).

With due respect to the Examiner, Jain's paragraph [0098] describes no such thing. Rather, the Jain reference apparently teaches that the alternate LSPs are first set up, see state 610 in Fig. 6A and then the LSP to be protected is set up. See paragraph 89 and states 620 and 622 in Fig. 6B. See also the initial sentence of paragraph [0078]. "Initially, one or more protection LSPs is defined (applicants' underlining)." On the other hand, claim 5 as amended states that "the route generator is arranged to generate the primary circuit path that includes the first element and a set of elements selected from the plurality of elements, and the list mechanism is arranged to identify the first element and the set of elements as being inaccessible for use in subsequently generating the alternate circuit path." Claim 5 is allowable on its own right.

Another example of an allowable dependent claim is claim 4 which recites, "...wherein the plurality of elements includes a protected link, the list mechanism further being arranged to identify the protected link, wherein the alternate circuit path does not include the protected link."

In rejecting this claim by the combination of the Jain, Baugher references and the applicants' purported admitted prior art, the Examiner stated:

As per claims 4, 6, 20 and 25, Jain discloses means for identifying the link as being inaccessible to the alternate circuit path, wherein the means for including the identifier which identifies the first element as being inaccessible for use as a part of the alternate circuit path is arranged to include an identifier which identifies the link as being inaccessible to the alternate circuit path in the lid (see Jain paragraph [0078]).

Although the system disclosed by Jain in view of Baugher shows substantial features of the claimed invention (discussed above), it fails to disclose the link being a protected link.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Jain in view of Baugher, as evidenced by the Applicant.

In an analogous art, the Applicant discloses that it is old and well known in the art to have a network that contains protected links (see Specification page 2, lines 17-27). Further it would have been obvious to modify Jain in view of Baugher by enabling the alternate circuit path to avoid the protected link and identify it as being inaccessible in order to avoid the high costs incurred of traversing the protected link.

As stated earlier, the Jain reference has no list mechanism as claimed by the applicants. Secondly, the Examiner's interpretation of Jain paragraph [0078] appears to be somewhat different from what is actually stated in the paragraph. In the Jain paragraph the "element" inaccessible for use as a part of the alternate circuit path is a node. "Thus, the protection LSP provides an alternate route between a first node and a second node and avoids a third node that is between the first and second nodes." Paragraph [0078]. However, claim 4 refers to links. Specifically, the claim recites, "...the protected link, wherein the alternate circuit path does not include the protected link." Furthermore, the Examiner has simply concluded that it is obvious that a protected link should be avoided in an alternate circuit path. The applicants note that the oft-cited Jain reference does not mention the avoidance of protected links in protection LSPs, despite an extensive description of protected resources and level of protection. See paragraphs [0098]-[0113]. Therefore, claim 4 should be allowable in its own right.

Hence independent claim 1 and dependent claims 4-6, 8-11, 37-38 should all be allowed.

Independent claim 19 and dependent claims 20-23

Claim 19 recites:

An element for use in an optical network...comprising:

...

a route generator, the route generator being arranged to compute a first circuit path between the element and the destination node, the first circuit path including a first link included in the plurality of links, wherein the route generator is configurable to selectively generate a nodal diverse alternate circuit path when a nodal diverse constraint is input and a link diverse alternate circuit path when a link diverse constraint is input, the input further being arranged to specify circuit characteristics for the first circuit path and for the second circuit path; and

a list, the list being stored in the memory, the list including a plurality of identifiers, the plurality of identifiers being arranged to identify selected links included in the plurality of links, the plurality of identifiers including a first identifier that identifies the first link, wherein the route generator is further arranged to compute the second circuit path using the list and the input, wherein the second circuit path includes a second link included in the plurality of links and does not include the selected links identified by the plurality of identifiers included in the list, wherein a failure of any of the selected links identified by the plurality of identifiers included in the list does not affect computing of the second circuit path.

In rejecting this claim, the Examiner reasoned:

...Jain in view of Baugher further disclose an element for use in an optical network, the optical network including a plurality of links, the element comprising:

...a route generator, the route generator being arranged to compute a first circuit path between the element and the destination node, the first circuit path including a first link included in the plurality of links (see Jain paragraph [0079-0080], where primary path is a path from a base node to end node) wherein the route generator is configured to generate a nodal diverse alternate circuit path when a nodal diverse constraint is input (see discussion above regarding the input of diverse constraints), and further configured to generate a link diverse alternate circuit path when a link diverse constraint is input (see Jain paragraph [0098]), the input further being arranged to specify circuit characteristics for the first circuit path and for the second circuit path (see Jain [0102]); and

a list, the list being stored in the memory, the list including a plurality of identifiers, the plurality of identifiers being arranged to identify selected links included in the plurality of links, the plurality of identifiers including a first identifier that identifies the first link, wherein the route generator is further arranged to compute the second circuit path using the list and the input, wherein the second circuit path includes a second link included in the plurality of links and does not include the selected links identified by the plurality of identifiers included in the list (see Jain paragraph [0078-0081] and [0098]), wherein a failure of any of the selected links identified by the plurality of identifiers included in the list does not affect computing of the second circuit path.

As explained in part earlier, there are several reasons why the rejection of claim 19 should not stand. First, the putative route generator in the Jain reference is not configurable as recited in the claim, as pointed out above. Neither the Jain nor Baugher reference, either singly or in combination, teaches “the route generator is configurable to selectively generate a nodal diverse alternate circuit path when a nodal diverse constraint is input and a link diverse alternate circuit path when a link diverse constraint is input....”

Secondly, the applicants note the Examiner’s misapprehension of the Jain reference. In responding to a portion of claim 19, i.e., “...a route generator, the route generator being arranged to compute a first circuit path between the element and the destination node, the first circuit path including a first link included in the plurality of links....,” the Examiner appears to assume that Jain paragraphs [0078]-[0081] refer to a primary circuit path. These paragraphs, to the contrary, refer to the protection LSPs, not the protected LSPs. For the example, the first sentence of cited paragraph [0078] states, “Initially one or more protection LSP’s is defined.” Paragraphs [0079]-[0081] continue the reference to protection LSPs. On the other hand, the claim recites “a first circuit path” so that these paragraphs might refer to the claim if one assumes that the first circuit path is a protection path, not a protected path. Likewise, with that assumption, Jain paragraph [0102] could “specify circuit characteristics for the first circuit path and for the second circuit path,” as the Examiner claims. The opening sentence of that paragraph states, “From the state 906, program flow may move to a state 908, in which a recovery time criteria may be specified.” The recovery time criteria refer to the protection elements, such as a path or link. There is no reference to the recovery time for a protected path. However, if such were the case, then paragraph [0098] is not applicable to the “list” element of claim 19 since that paragraph refers to protected resources, such as a primary path, not two protection paths. The Examiner’s interpretation of the Jain reference leads to a contradiction.

Thirdly, there is no “list” as recited in claim 19 in the cited portions of the Jain reference. Paragraphs [0078]-[0081] and [0098] do not describe a list as the applicants have been able to determine. Furthermore, the claimed list includes, “a plurality of identifiers, the plurality of identifiers being arranged to identify selected links included in the plurality of links....,” and the paragraphs [0078]-[0081] refer to nodes, not links. Paragraph [0098], as pointed out above, can’t

be applicable to applicants' "list," given the assumptions above for the first and second circuit paths.

Therefore, independent claim 19 is not obvious over the combination of the cited Jain and Baugher references and should be allowable. Claims 20-23 should also be allowable for at least being dependent upon an allowable base claim, and at least some, if not all, of these dependent claims are allowable in their own right. For example, claim 20 should be allowed for the arguments above with respect to claim 4.

Hence independent claim 20 and dependent claims 21-23 should all be allowed.

Independent claim 24 and dependent claims 25-27

Claim 24 reads:

An element...comprising:

...

a route generator, the route generator being arranged to compute a first circuit path between the element and the destination node, the first circuit path including a first node included in the plurality of nodes, wherein the route generator is configurable to selectively generate a nodal diverse alternate circuit path when a nodal diverse constraint is input and a link diverse alternate circuit path when a link diverse constraint is input, the input further being arranged to specify circuit characteristics for the first circuit path and for the second circuit path; and

a list, the list being stored in the memory, the list including a first identifier, the first identifier being arranged to identify the first node, wherein the route generator is still further arranged to compute a second circuit path using the list and the input, wherein the second circuit path includes a second node included in the plurality of links and does not include the first node and a failure of the first node does not affect computing the second circuit path.

Claim 24 was rejected on the same grounds as claim 19. Likewise, by the same arguments made above with respect to claim 19, claim 24 should be allowable. In a similar fashion, dependent claims 25-27 should also be allowable.

Independent claim 39 and dependent claims 40-47

Claim 39 recites:

A device for computing circuit paths between a first node and a second node within a network...comprising:

...

a route generator, the route generator being arranged to generate a primary circuit path between the first node and the second node, the primary circuit path including the first plurality of elements, wherein the route generator is configurable to selectively generate a nodal diverse alternate circuit path when a nodal diverse constraint is input and a link diverse alternate circuit path when a link diverse constraint is input, the input further being arranged to specify a load characteristic that is to be accounted for when the alternate circuit path is generated; and

a list mechanism, the list mechanism being stored in the memory, the list mechanism being arranged to identify the first plurality of elements and the at least one protected element, wherein the route generator is further arranged to generate an alternate circuit path between the first node and the second node using the list mechanism and the input, wherein the alternate circuit path does not include the first plurality of elements and the at least one protected element identified by the list mechanism.

In rejecting this claim, the Examiner stated:

As per claim 39, Jain in view of Baugher in view of Applicants admitted Prior Art discloses ...;

a route generator being arranged to generate a primary circuit path between the first node and the second node, the primary path including a first element selected from the plurality of elements (see Jain paragraph [0080-0081]), wherein the route generator is to generate a nodal diverse alternate circuit path when a nodal diverse constraint is input, and further configured to generate a link diverse alternate circuit path when a link diverse constraint is input (see discussion above regarding input and also Jain paragraphs [0098]), the input further being arranged to specify a load characteristic that is to be accounted for when the alternate circuit path is generated (see Jain paragraph [0102-0103]); and

a list mechanism, the list mechanism being stored in the memory, the list being arranged to identify the first plurality of elements and at least one protected element (see Jain paragraph [0080] and discussion above regarding Applicants admitted Prior Art), wherein the route generator is further arranged to generate an alternate circuit path between the first node and the second node using the list mechanism and the input, wherein the alternate circuit path does not include the first plurality of elements and at least one protected element identified by the list mechanism (see Jain paragraphs [0078-0081], and discussion above regarding Applicants Prior Art).

Once again there are several reasons why the rejection of claim 39 should not stand.

First, Jain paragraphs [0080]-[0081] do not teach the generation of a primary circuit path, rather the generation of protection LSPs, as pointed out earlier. Secondly, the applicants' configurable route generator is not taught by the combination of the Jain and Baugher references, as argued in detail with respect to claim 1. Thirdly, there is no list mechanism as claimed by the applicants taught in the Jain reference.

Thus claim 39 is not obvious over the combination of the Jain and Baugher references in view of the Applicants' admitted prior art, and the claim should be allowable. Claims 40-43 should also be allowable for at least being dependent upon an allowable base claim and at least some, if not all, of these dependent claims are also allowable in their own right.

Independent claim 44 and dependent claims 45-47

Claim 44 recites:

A method for computing circuit paths between a first node and a second node within a network, the network including a plurality of elements, the network comprising:

- receiving an input, the input specifying a nodal diverse constraint or a link diverse constraint for an alternate circuit path between the first node and the second node relative to a primary circuit path between the first node and the second node, the input further being arranged to specify circuit characteristics for the primary circuit path and for the alternate circuit path;

- generating the primary circuit path, the primary circuit path including a first element selected from the plurality of elements, wherein generating the primary circuit path includes accounting for the specified circuit characteristics;

- creating a list, the list being arranged to identify the first element;

- storing the list in a memory; and

- generating a nodal diverse alternate circuit path when a nodal diverse constraint is received and generating a link diverse alternate circuit path when a link diverse constraint input is received, the alternate circuit path to not include the first element and to account for the specified circuit characteristics, wherein generating the alternate circuit path includes accessing the stored list and identifying the first element stored in the first list as being blocked from use in routing the alternate circuit path.

The claim was rejected on the basis of the following reasoning:

Jain in view of Baugher discloses a method for computing circuit paths between a first node and a second node within a network, the network including a plurality of elements, the network comprising:

- receiving an input, the input specifying a nodal diverse constraint or a link diverse constraint for an alternate circuit path between the first node and the second node relative to a primary circuit path between the first node and the second node, the input further being arranged to specify circuit characteristics for the primary circuit path and for the alternate circuit path (see Jain paragraph [0098] and [0102]);

- generating the primary circuit path, the primary circuit path including a first element selected from the plurality of elements, wherein generating the primary circuit path includes accounting for the specified circuit characteristics (see Jain paragraph [0102-0103]);

- creating a list, the list being arranged to identify the first element (see Jain

paragraph [0080]);

storing the list in a memory (see Jain paragraph [0080] and [0063]); and generating a nodal diverse alternate circuit path when a nodal diverse constraint is received and generating a link diverse alternate circuit path when a link diverse constraint input is received (see discussion above regarding the input constraints), the alternate circuit path to not include the first element and to account for the specified circuit characteristics, wherein generating the alternate circuit path includes accessing the stored list and identifying the first element stored in the first list as being blocked from use in routing the alternate circuit path and wherein a failure of the first element does not affect generating the alternate circuit path (see Jain paragraph [0080-0081]).

The applicants respectfully disagree with the rejection on numerous grounds. First, with respect to the claimed receiving input step, there is no description in Jain paragraphs [0098] and [0102] of an input specifying circuit characteristics for a primary circuit path as called in applicants' claim. Paragraph [0098] specifies the protected path as a "kind, type or category of protected resource." "For example, the protected resource may be a complete end-to-end label-switched path (LSP) within the network 100. Alternately, the protected resource may be a portion of the network 100...." While Paragraph [0102] might be considered as specifying circuit characteristics, the paragraph describes the recovery time criteria which the protection LSP, not the primary circuit path, should meet.

Secondly, with respect to the claimed primary circuit path generating step, there is no description of primary circuit path generation in cited paragraphs [0102] and [0103]. As pointed out immediately above, paragraph [0102] describes the recovery time criteria for the protection LSP. Paragraph [0103] continues a description of backup paths, not the primary circuit path. The first sentence of the paragraph reads, "Program flow may then move to a state 910 in which the quality of backup path criteria may be specified."

Thirdly, there is no list as recited in the applicants' creating list step described in paragraph [0080]. Furthermore, "the first element" in the step belongs to the primary circuit path and paragraph [0080] deals with protection LSPs, not primary circuit paths. This is evident from the first sentence of earlier paragraph [0078] and the description of the flow diagram in paragraph [0077]. Step 608 in paragraph [0080] describes the formation of protection LSPs.

Fourthly, with respect to the nodal and link diverse alternate circuit path generating step, there is no “link diverse alternate circuit path” described in cited paragraphs [0080] and [0081]. Likewise, there is no “accessing of the stored list and identifying the first element” in these paragraphs. Only nodes, not links, are described in the cited paragraphs. Furthermore, the paragraphs disclose neither a list, much less a first element associated with the primary circuit path, as recited in the claim.

Hence independent claim 44 is not obvious over the combination of the Jain and Baugher references and should be allowable. Claims 45-47 should be also allowable for at least being dependent upon an allowable base claim.

Conclusion

Hence neither singly nor in combination, the cited Jain and Baugher references do not anticipate nor render obvious pending claims 1, 4-6, 8-11, 19-27 and 37-47. Therefore, the applicants respectfully request that the rejections be withdrawn, that all pending claims 1, 4-6, 8-11, 19-27, and 37-47 be allowed, and the case be passed to issue. If a telephone conference would in any way expedite prosecution of the application, the Examiner is asked to call the undersigned at (408) 868-4088 without hesitation.

Respectfully submitted,

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